

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/016056

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ C07D239/42, 239/69, 409/12, A61K31/505, 31/506, 31/517, 45/00, A61P1/00, 1/04, 1/10, 1/12, 7/10, 9/02, 9/06, 9/12, 11/00, 11/06, 25/00, 25/08, 25/16, 25/18, 25/20, 25/22, 25/24, 43/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ C07D239/42, 239/69, 409/12, A61K31/505, 31/506, 31/517, 45/00, A61P1/00, 1/04, 1/10, 1/12, 7/10, 9/02, 9/06, 9/12, 11/00, 11/06, 25/00, 25/08, 25/16, 25/18, 25/20, 25/22, 25/24, 43/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CA (STN), REGISTRY (STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	WO 98/14213 A (Daiichi Pharmaceutical Co., Ltd.), 09 April, 1998 (09.04.98), Full text; particularly, Claims & CA 2267375 A & NO 991570 A & EP 953356 A1 & AU 727482 B & US 2001-51641 A1	1-7, 14, 15 16-18, 21 8-13, 19
Y	WO 03/68753 A1 (Ono Pharmaceutical Co., Ltd.), 21 August, 2003 (21.08.03), Full text; particularly, page 51, line 17 to page 52, line 5 (Family: none)	16-18, 21

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
30 November, 2004 (30.11.04)

Date of mailing of the international search report
14 December, 2004 (14.12.04)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2001-199982 A (Dainippon Pharmaceutical Co., Ltd.), 24 July, 2001 (24.07.01), Full text (Family: none)	16-18,21
X A	WO 03/82191 A (MERCK & CO., INC.), 09 October, 2003 (09.10.03), Full text (Family: none)	1-9,14-18,21 10-13,19
X A	WO 02/20495 A (CHIRON CORP.), 14 March, 2002 (14.03.02), Full text & AU 9502601 A & US 2002-156087 A1 & EP 1317433 A & JP 2004-514656 A	1-9,14-18,21 10-13,19
X A	WO 02/92573 A2 (VERTEX PHARMACEUTICALS INC.), 21 November, 2002 (21.11.02), Full text & US 2003-144309 A1 & CA 2446864 A & EP 1387671 A	1-9,14-19,21 10-13
X A	JP 2003-523380 A (F. Hoffmann-La Roche AG.), 05 August, 2003 (05.08.03), Full text; particularly, Claims & WO 01/62233 A2 & CA 2398274 A & AU 5464301 A & US 2001-27196 A1 & NO 20024006 A & EP 1261327 A & BR 108611 A & CZ 20023199 A & HU 300029 A	1-12,14-18,21 13,19
X A	JP 2002-510322 A (Du Pont Pharmaceuticals Co.), 02 April, 2002 (02.04.02), Full text; particularly, Claims & WO 99/1439 A1 & AU 8181098 A & CA 2296014 A & EP 994860 A & US 6103737 A1	1-9,14-18,21 10-13,19
X A	WO 02/79197 A (VERTEX PHARMACEUTICALS INC.), 10 October, 2002 (10.10.02), Full text & CA 2441733 A & US 2003-87922 A1 & EP 1373257 A	1-9,14-18,21 10-13,19
X A	WO 03/35639 A1 (Eisai Co., Ltd.), 01 March, 2003 (01.05.03), Full text (Family: none)	1-9,14-18,21 10-13,19

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	WO 02/96421 A1 (NEUROGEN CORP.), 05 December, 2002 (05.12.02), Full text & CA 2448198 A & US 2003-152520 A1 & NZ 529872 A & EP 1392302 A & BR 209920 A & SK 15432003 A	1-9, 14-18, 21 10-13, 19
X A	JP 10-226649 A (Tanabe Seiyaku Co., Ltd.), 25 August, 1998 (25.08.98), Full text (Family: none)	1-9, 14-18, 21 10-13, 19
X A	WO 00/73279 A (F. Hoffmann-La Roche AG.), 07 December, 2000 (07.12.00), Full text & CA 2375671 A & US 6274588 B1 & NO 20015700 A & BR 11127 A & EP 1187815 A & CZ 20014271 A & HU 201315 A & JP 2003-500478 A & HR 20010871 A & PL 353441 A & AU 770786 B & NZ 515407 A	1-9, 14-18, 21 10-13, 19
X A	JP 2001-525794 A (F. Hoffmann-La Roche AG.), 11 December, 2001 (11.12.01), Full text; particularly, pages 11 to 21 & TW 440563 B & ID 16969 A & HK 1020345 A & ZA 9704281 A & WO 97/44326 A1 & CA 2255705 A & HR 970275 A & NO 985392 A & US 5863924 A1 & EP 901474 A & CZ 9803803 A & PL 330069 A & CN 1223641 A & BR 9709599 A & US 5952331 A1 & HU 9901535 A & NZ 332802 A & AU 725891 B	1-9, 14-18, 21 10-13, 19
X A	WO 03/72107 A1 (PHARMACIA & UPJOHN CO.), 04 September, 2003 (04.09.03), Full text & US 2003-195222 A1	1-9, 14-18, 21 10-13, 19
X A	WO 03/45924 A1 (PHARMACIA & UPJOHN CO.), 05 June, 2003 (05.06.03), Full text & US 2003-144297 A1	1-7, 14-18, 21 8-13, 19
X A	JP 11-209350 A (Eisai Co., Ltd.), 03 August, 1999 (03.08.99), Full text; particularly, Claims & WO 99/37622 A1 & CA 2318579 A & EP 1052254 A1 & US 6352989 B1	1-7, 14-18, 21 8-13, 19

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	WO 96/32384 A1 (Taiho Pharmaceutical Co., Ltd.), 17 October, 1996 (17.10.96), Full text & CA 2190973 A & AU 5289296 A & NO 965334 A & EP 767170 A1 & US 5786355 A1 & KR 275300 B & JP 3145410 B	1-9, 14 10-13, 15-19, 21
X A	WO 03/29248 A1 (CYCLACEL LIMITED), 10 April, 2003 (10.04.03), Full text & GB 123377 D & CA 2460909 A & CZ 20040354 A & EP 1430051 A	1-9, 14 10-13, 15-19, 21
X A	JP 3-7266 A (Shiratori Pharmaceutical Co., Ltd.), 14 January, 1991 (14.01.91), Full text (Family: none)	1-9, 14 10-13, 15-19, 21
X A	JP 6-501926 A (Fujisawa Pharmaceutical Co., Ltd.), 03 March, 1994 (03.03.94), Full text & GB 9020345 A & WO 92/2513 A1	1-9, 14 10-13, 15-19, 21
X A	WO 02/49648 A1 (SCHERING CORP.), 27 June, 2002 (27.06.02), Full text & EP 1343503 A & CA 2432809 A & AU 3405602 A & US 2003-55062 A1 & NO 20032861 A & BR 116379 A & HU 303339 A	1-9, 14, 19 10-13, 15-18, 21
X A	WO 03/63871 A (NOVARTIS PHARMA GMBH), 07 August, 2003 (07.08.03), Full text; particularly, Claims 1 to 10 & GB 202381 D	1-9, 14 10-13, 15-19, 21
X A	TANAKA, Katsunao et al., Synthesis of a Magnosalin Derivative, 4-(3,4,5- Trimethoxyphenyl)-6-(2,4,5-trimethoxyphenyl) -2-diethylaminopyrimidine, and the Anti- Angiogenic and Anti-Rheumatic Effect on Mice by Oral Administration, Bioorganic & Medicinal Chemistry Letters, 25 February, 2002 (25.02.02), Vol.12, No.4, pages 623 to 627	1-9, 14 10-13, 15-19, 21

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 20
because they relate to subject matter not required to be searched by this Authority, namely:
Claim 20 pertains to methods for treatment of the human body by therapy and thus relates to a subject matter which this International Searching Authority is not required, under the provisions of Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

It appears that the compound group set forth in Markush form in claim 1 has the common property of mitochondrial benzodiazepine receptor antagonistic action and has the common chemical structure of A-W-D-Y-Q. However, since compounds of this structure are publicly known as described in the references listed in column C, namely, WO 98/14213 A, JP 2003-523380 A, WO 03/82191 A, etc., this chemical structure cannot be recognized as an important chemical structure element. Therefore, it does not appear that the invention group is linked so as to form a single general inventive concept.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

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Claims 1-12, 14-19 and 21 cover a vast plurality of compounds. However, only some of the claimed compounds are supported by the description within the meaning of PCT Article 6 and disclosed therein within the meaning of PCT Article 5.

Therefore, search has been conducted only on parts supported by the description and disclosed therein, namely, compounds wherein D is a 6- or 10-membered heterocyclic compound containing one or two nitrogen atoms and W is a bond. With respect to claim 13, complete search has been conducted.